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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WANG, TED M	

ART UNIT	PAPER NUMBER
2634	6

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/833,749	MCFARLAND ET AL.	
	Examiner	Art Unit	
	Ted M Wang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-89* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *62-71,78 and 79* is/are allowed.

6)☒ Claim(s) *1,3,5-12,39-42,57-61,72,73,76,80,82,84 and 86-89* is/are rejected.

7)☒ Claim(s) *2,4,13-38,43-56,74,75,77,81,83 and 85* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-89 are pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-12, 39-42, 57-61, 72, 73, 76, 80, 82, 84, and 86-89 are rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art of the instant application.

- In regard claim 1, the admitted prior art of the instant application discloses a multi-carrier receiver with method of the following steps: locating the one symbol (Fig.1 and Fig.2 elements 210-224 and page 5 lines 4-22); decoding the encoding bits of the one symbol (Fig.2 elements 224-232 and page 5 line 20 – page 6 line 13); setting the gain of the receive path amplifier to correspond to an appropriate gain that is determined in part based upon the encoding bits (Fig.2 elements 214 and 220, page 5 lines 13-17, and page 6 lines 18 – page 7 line 2); and amplifying the at least one subsequent data symbol with the appropriate gain (Fig.2 element 214).

- In regard claim 5, the limitation of sampling a portion of the one symbol corresponding to the encoded bits; and performing a discrete Fourier Transform on the encoded bits can further be taught in Fig.1 and Fig.2 elements 210-224, and page 5 lines 4-22.
- In regard claim 6, the limitation of decoding the at least one subsequent data symbol using a fast Fourier transform and a Viterbi decoding process can further be taught in Fig.1 and Fig.2 elements 224-232, and page 5 line 20 – page 6 line 17.
- In regard claim 7, the limitation of setting an initial gain based upon at least one power estimation algorithm applied to a plurality of training symbols within the packet which precede the one symbol can further be taught in page 5 line 18 – page 6 line 2.
- In regard claim 8, the limitation that the encoding bits provide data rate information can further be taught in Fig.1 and page 4 line 21 – page 5 line 3.
- In regard claim 9, the limitation that the encoding bits provide data rate information can further be taught in Fig.1 and page 4 line 21 – page 5 line 3.
- In regard claim 10, the limitation that the encoding bits provide data rate information and modulation type information can further be taught in Fig.1 and page 4 line 21 – page 5 line 3.
- In regard claim 11, the limitation that there are a plurality of other symbols and a plurality of corresponding guard intervals between the one symbol and the

subsequent data symbol can further be taught in Fig.1 and page 4 line 16 – page 5 line 3.

- In regard claim 12, the limitation of data symbols that are subsequent to the at least one subsequent data symbol and which are part of the same packet are amplified with the appropriate gain can further be taught in page 6 line 18 – page 7 line 2.
- In regard claim 39, which is an operation claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 40, the limitation that the first type of encoding is BPSK and the plurality of second types of encoding include different sizes of quadrature amplitude modulation constellations. can further be taught in page 1 lines 13-19.
- In regard claim 41, the limitation that the first type of encoding is at a first data rate and the one of the plurality of identified second type of encoding is at a second data rate different from the first data rate can further be taught in page 5 lines 1-3.
- In regard claim 42, the limitation that the second data rate is faster than the first data rate can further be taught in page 1 lines 13-19.
- In regard claim 57, which is an operation claim related to claim 6, all limitation is contained in claim 6. The explanation of all the limitation is already addressed in the above paragraph.

- In regard claim 58, which is an operation claim related to claim 7, all limitation is contained in claim 7. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 59, which is an operation claim related to claim 8, all limitation is contained in claim 8. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 60, which is an operation claim related to claim 9, all limitation is contained in claim 9. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 61, which is an operation claim related to claim 10, all limitation is contained in claim 10. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 72, which is an apparatus claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 73, which is a means function claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 76, the limitation that decoding includes a decoder that decodes both the encoding bits and the at least one subsequent data symbol can further be taught in Fig.2 and page 5 line 4 – page 7 line 2.

- In regard claim 80, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph. In addition, from Fig.2, decoding the entire symbol such that the decoding of the entire one symbol takes longer than the first time period is inherent.
- In regard claim 82, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 84, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 86, all limitation is contained in claim 58. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 87, all limitation is contained in claim 8. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 88, all limitation is contained in claim 9. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 89, all limitation is contained in claim 10. The explanation of all the limitation is already addressed in the above paragraph.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the instant application in view of Kindler et al. (US6, 456,670).

- In regard claim 3, the admitted prior art of the instant application discloses all of the limitation as described in the above paragraph except specifically teaching that the decoding decodes only the encoding bits within the one symbol.

  Kindler et al. discloses a method for processing a signal containing data symbols having the step of decoding decodes only the encoding bits within the one symbol (column 2 line 61 – column 3 line 15) in order to speed up the detection process.

  It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the admitted prior art of the instant application's multi-carrier receiver in view of Kindler's disclosure in order to speed up the detection process.

Allowable Subject Matter

6. Claims 2, 4, 13-38, 43-56, 74, 75, 77, 81, 83, and 85 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 62-71, 78, and 79 are allowed.

Conclusion

8. Reference US6,711,221 and US5,812,523 are cited because they are put pertinent to the OFDM receiver. However, none of references teach detailed connection as recited in claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M Wang whose telephone number is (703) 305-0373. The examiner can normally be reached on 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang

SHUWANG LIU
PRIMARY EXAMINER